2 Chapter review

Remembering

1 a **List** the parts of an animal cell that can be seen under a light microscope.
b **List** the parts of a plant cell.

2 **Name** the lens of the microscope that:
a you look through
b is closest to the specimen.

3 **Name** the process that occurs in chloroplasts.

Understanding

4 **Outline** the function of the following cell parts.
a plant cell wall
b cell membrane
c nucleus

5 **Explain** the difference between a specimen and an image when using a microscope.

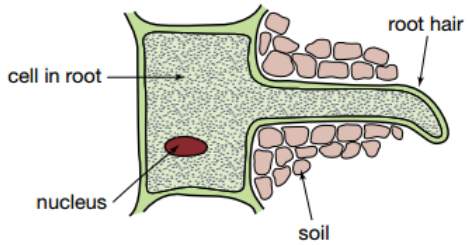
6 **Describe** what happens to the field of view when a microscope is changed from low power to high power.

7 **Predict** what will happen to the field of view when a ×10 objective lens is replaced by a ×4 objective lens.

8 When focusing a microscope, you are supposed to look from the side as you bring the stage and objective lens close together. **Predict** what could happen if you were looking through the ocular lens as you did this.

9 Study the diagram in Figure 2.5.1, which shows a root hair cell.
a **Describe** the function of the root hair cell.
b **Explain** how the shape of this cell helps it to carry out its function.

Figure 2.5.1



Applying

10 **Use** diagrams to **demonstrate** the differences between plant, animal and fungal cells. L

11 The term *organelle* means *little organ*. Organs and organelles are very different. **Demonstrate** why organelle is an appropriate name for these structures.

12 **Calculate** the missing numbers in this table. N

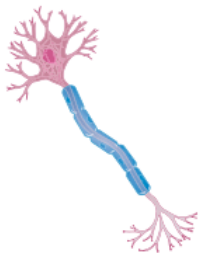
Ocular lens	Objective lens	Total magnification
×4		×40
	×10	×100
×4	×100	
×10	×40	
×10		×1000

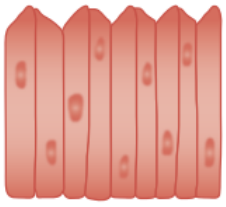
13 The field of view of a microscope was measured and found to be 3 mm using a magnification of ×10. N

Calculate the diameter of the field of view at the following different magnifications and using the two different units.

Magnification	×10	×100	×1000
Diameter of field of view (mm)	3		
Diameter of field of view (µm)			

14 **Identify** the types of cells represented in these diagrams.

a 

c 

b 

d 

Analysing

15 **Classify** each of the following cell types as plant or animal cells.
- a guard cells
- b nerve cells
- c muscle cells
- d photosynthetic cells
- e root hair cells

16 **Compare** the outer layer of plant cells and:
- a animal cells
- b fungal cells.

17 **Compare** unicellular and multicullular organisms.

18 **Classify** each of the organisms in Figure 2.5.2 as unicellular or multicellular.

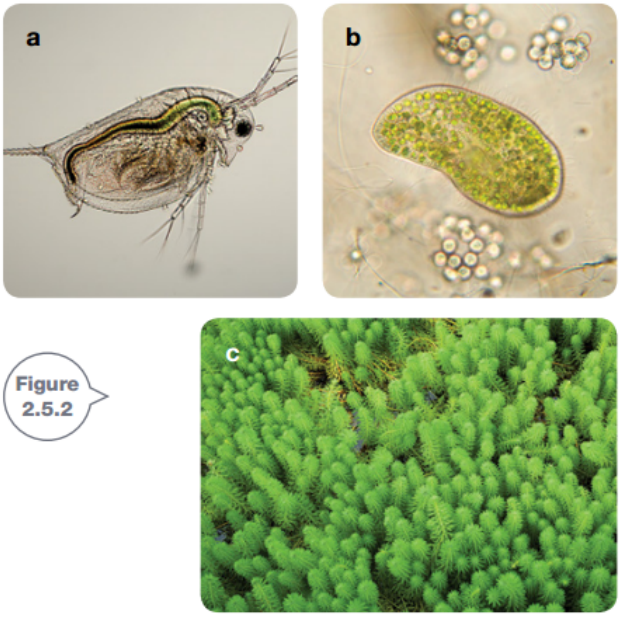


Figure 2.5.2

20 **Select** the correct statements from the following list.
- A A structure made up of different types of tissues is an organ.
- B When cells of the same type are grouped together, they form a system.
- C There are many different organs in a tissue.
- D Tissues are groups of cells of the same type.
- E In a system, many organs work together.

21 Look back at Figure 2.3.4 on page 63, showing cardiac muscle. The fibres of cardiac muscle are arranged in a network. **Propose** a benefit to you of having the fibres interlocking in this way.

22 Many plants have leaves that are thin and flat. **Propose** how changing the shape of a leaf to a cube would affect the functioning of the leaf as an organ of photosynthesis.

23 a **Determine** whether you can or cannot answer the questions on page 41 at the start of this chapter.
- b **Assess** how well you understand the material presented in this chapter.

Creating CCT

24 **Use** the following ten key terms to **construct** a visual summary of the information presented in this chapter.

cell	plant
animal	unicellular organism
multicellular organism	tissue
organ	organ system
specialised cell	microscopic

2.10

Evaluating CCT

19 **Use** Figure 2.5.3 to:
- a **compare** the size of plant cells and animal cells.
- b **propose** a reason for plant cells being the first cells to be seen
- c **propose** a reason why bacteria were not discovered until long after plant cells.

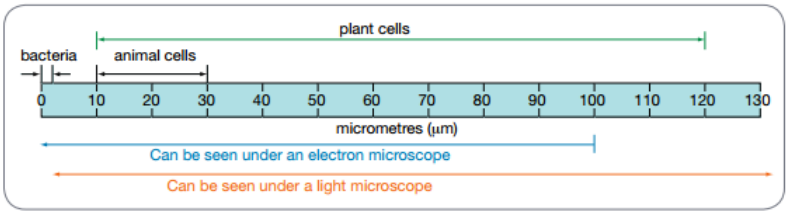
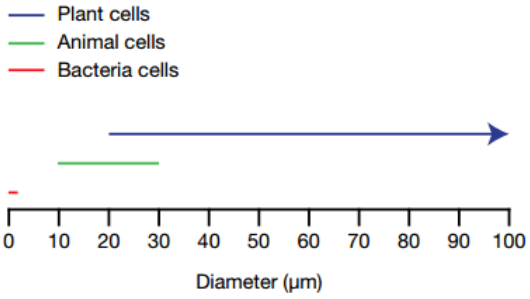


Figure 2.5.3

Thinking scientifically

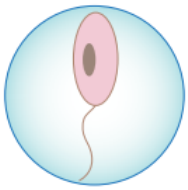
Q1 Four cells were viewed under a microscope and their diameters were measured. Use the information in the diagram to decide which one was most likely to be a cell from an animal. CCT



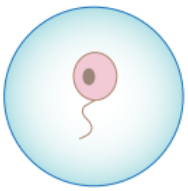
A 100 μm **B** 2 μm
C 15 μm **D** 45 μm

Q2 The unicellular organism shown here was viewed under a microscope with a magnification of ×2. Which diagram represents the image you would see? CCT

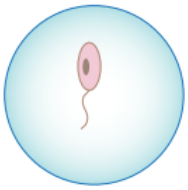
A



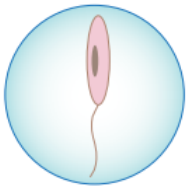
B



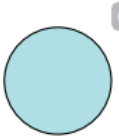
C



D



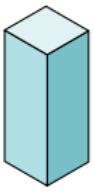
Q3 When a cell was cut from a section of a plant stem and viewed under a microscope, it appeared as a circle, as shown. CCT



Which one of the following could *not* be the three-dimensional shape of the cell?

A

B

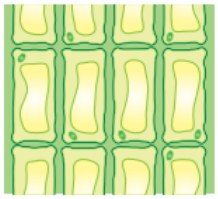


C

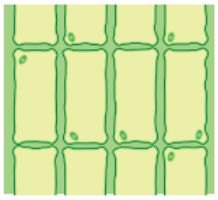
D

Q4 Figure 2.6.1 shows some normal plant cells. What would the cells look like if the plant they came from had no water for 3 days? CCT

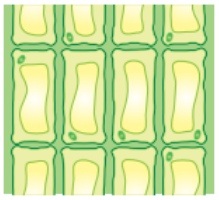
Figure 2.6.1



A



B



C

D